

Release Notes: National Ecological Footprint and Biocapacity Accounts, 2022 Edition

The 2022 Edition of the National Ecological Footprint and Biocapacity Accounts details Ecological Footprint and Biocapacity, by total and by component, at a national level and on a world-total basis, from 1961 to 2018. Ecological Footprint is measured for production, imports, exports, and consumption, where consumption equals production plus imports minus exports.

Results are available for 238 entities including the world, current and former/split/unified nations, and some territories within countries. Of these, 190 countries, plus the world, have a reliable timeline of data and are therefore available through data.footprintnetwork.org.

Versions and updates

- Version 1.0. **Public Release. TBD.**

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Credits:

This edition was produced by Eric Miller, Flora Gomez, Apeksha, Kendra Lee, and Ahmed Abdul Aziz. Results were reviewed by David Lin at Global Footprint Network. This edition benefited from an accumulation of prior-year research and work from Global Footprint Network.

The accounts integrate data from global statistics that detail consumption, production, population, and economic parameters by year, and by country or the world. Key sources include the International Energy Agency (IEA), the Food and Agriculture Organization (FAO) of the United Nations and its ProdStat, TradeStat, ResourceStat, and FishStat databases, UN COMTRADE, CORINE Land Cover, Global Agro-Ecological Zones (GAEZ), Global Land Cover (GLC), Global Carbon Budget, World Bank, International Monetary Fund, and Penn World Tables. The accounts also use parameters from peer-reviewed science journals and thematic collections.

Definitions and concepts

Ecological Footprint is measured in global hectares as the sum of the following components: cropland, grazing land, built-up land, fishing grounds, forest products, and terrestrial carbon uptake by forested lands. Biocapacity is also measured in global hectares as the sum of the

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following components: cropland, grazing land, built-up land, fishing grounds and forest biocapacity (which provides the capacity to supply forest products or to absorb the carbon emitted by burning fossil fuels).

A global hectare is a hectare of land that provides a world-average amount of biological regeneration each year. Global hectares are derived from hectares by applying several conversion factors, including: a yield factor that relates national yield of a specific land type relative to world-average yield, an equivalence factor that relates components to one another based upon their level of biological productivity, and an intertemporal yield factor that relates changes in biological productivity over time. Expressing Ecological Footprint and Biocapacity in standardized units of global hectares allows for comparisons across the world and over time.

Further details about the concepts and calculations are provided in:

Lin, D., Hanscom, L., Murthy, A., Galli, A., Evans, M., Neill, E., Mancini, M.S., Martindill, J., Medouar, F.Z., Huang, S. and Wackernagel, M., 2018. Ecological footprint accounting for countries: updates and results of the national footprint accounts, 2012–2018. *Resources*, 7(3), p.58. doi:10.3390/resources7030058

Borucke, M., Moore, D., Cranston, G., Gracey, K., Iha, K., Larson, J., Lazarus, E., Morales, J.C., Wackernagel, M. and Galli, A., 2013. Accounting for demand and supply of the biosphere's regenerative capacity: The National Footprint Accounts' underlying methodology and framework. *Ecological indicators*, 24, pp.518-533. doi:10.1016/j.ecolind.2012.08.005

How this edition compares to the prior 2020 edition:

This 2022 edition adds the year 2018 to the timeline of Ecological Footprint and Biocapacity and re-calculates the entire timeline prior to 2018 from data that was newly downloaded in 2021.

In this edition, we updated the calculation methodology to omit including the mass of “special transactions” (commodity code 9310) from COMTRADE in the attribution of global transport emissions. Special transactions reflect statistical outliers that cannot be reasonably understood or cleaned by our data-cleaning algorithms.

This 2022 edition does not report on cropland and livestock for several entities that are no longer reported by the United Nations FAO: American Samoa, Aruba, Bermuda, British Virgin Islands, Cayman Islands, Falkland Islands (Malvinas), Greenland, Guam, Liechtenstein, Montserrat, Netherlands Antilles (former), Norfolk Island, Pacific Islands Trust Territory, Saint Helena, Ascension and Tristan da Cunha, Saint Pierre and Miquelon, United States Virgin Islands, Wallis and Futuna Islands, and Western Sahara.

In this edition, data for Sudan, South Sudan, and Sudan (former) in 2011 and 2012 reflect reported data whereas previous editions estimated most of the data in these years.

In this edition, Resourcestat reported 12.9% more area for Ethiopia, 3.57% for Uzbekistan, and 0.19% for the world. This edition used a more recent updated CORINE data which slightly (<1%) affected the area of most European countries from 2011 to 2018.

Several countries have different data-quality scores for the 2022 edition, which affects the amount of national data published at data.footprintnetwork.org. The countries of Algeria, Finland, Guatemala, Senegal, Eswatini, Uruguay, and South Sudan are now scored as 3A, therefore all components are shown throughout the timeline. Belize, Solomon Islands, Faroe Islands and Vanuatu have higher data-quality scores than in the last edition however, there is still significant missing data preventing these nations to get the top score. All countries not reported by FAO on this edition have been assigned a score of 1D due to this shortcoming.

Data availability:

National and global measures of Ecological Footprint (of Consumption) and Biocapacity, and their components, are available at <https://data.footprintnetwork.org/>

Data for all countries are categorized with a “data quality score” that informs whether all or some or none of the data from a particular nation is included in the open data platform.

Advanced data users can download the data from <https://data.world/footprint/>

A public data package may be requested as an MS Excel Workbook containing national and global statistics. Other information may be requested including an MS Excel Workbook of all datapoints that were used to generate the accounts for one nation in one year.

Questions and comments:

Please direct questions or comments to footprint@yorku.ca or by mail to:

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York University’s Ecological Footprint Initiative has the website: <https://footprint.info.yorku.ca>

The Global Footprint Network has the website: <https://www.footprintnetwork.org>